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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/851,274	05/08/2001	Hiroshi Kubota -	5576-125	3436

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EXAMINER

LEE, SIN J

ART UNIT	PAPER NUMBER
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1752

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DATE MAILED: 09/06/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/851,274

Applicant(s)

KUBOTA ET AL.

Examiner

Sin J Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 May 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 9-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 9-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

1. Claims 5-8 were canceled by applicants in their preliminary amendment.
2. Claim 2 is objected to because of the following informalities: Applicants need to insert --- and --- right before "polyoxyalkylene laurylates". Appropriate correction is required. ✓
3. It is to be noted that present claims 3 and 4 were interpreted by the Examiner to be claiming a chemically amplified resist material *which is capable of being exposed* to high energy radiation of 500nm or less, x ray or electron beam.
4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made

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to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-4 and 13-16 are rejected under 35 U.S.C. 102(e) as being anticipated by

Kawabe et al (6,159,656).

Kawabe teaches a chemical amplification type positive resist composition suitable for exposure to far UV rays (220 nm or shorter wavelength) which comprises at least one of a fluorine type surfactant and a silicone type surfactant (in Kawabe's Examples 1 and 2, "Megafac F176" (a fluorine type surfactant) is used). See col.3, lines 37-65, col.45, lines 55-56, and Table 1 in col.49-50. Kawabe also teaches (col.44, lines 64-67) that a nonionic surfactant can be further added for the purpose of improving the applicability of each photosensitive resin composition of his invention or improving developability. Therefore, based on this teaching, one of ordinary skill in the art would immediately envisage adding a nonionic surfactant to Kawabe's resist composition in order to improve the applicability of the photoresist composition and improve developability. None of the examples which Kawabe lists in col.45, lines 1-7 for his nonionic surfactant includes any fluorine substituent or a silicon-containing substituent.

Therefore, the prior art teaches present inventions of claims 1 and 3.

With respect to present claim 2, Kawabe teaches (col.45, lines 1-7) only eight examples to choose from for his nonionic surfactant. Among those eight, polyoxyethylene lauryl ether and polyoxyethylene stearyl ether are presently claimed *polyoxyalkylene alkyl ethers*, and polyoxyethylene octylphenyl ether and polyoxyethylene nonylphenyl ether are presently claimed *polyoxyalkylene aralkyl ethers*. Since there are only eight examples to choose from, it is the

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Examiner's position that one of ordinary skill in the art would immediately envisage using any one of polyoxyethylene lauryl ether, polyoxyethylene stearyl ether, polyoxyethylene otylphenyl ether, and polyoxyethylene nonylphenyl ether as Kawabe's nonionic surfactant. Therefore, the prior art teaches present inventions of claims 2 and 4.

Kawabe teaches (col.45, lines 51-58) that his photosensitive resin composition is applied on a substrate, and the coating film is subjected to pre-bake and then exposed to an exposure light having a wavelength of 220 nm or shorter through a given mask. The exposed film is subjected to post-exposure bake and then developed to obtain a satisfactory resist pattern.

Therefore, Kawabe teaches present inventions of claims 13-16.

7. Claims 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawabe et al (6,159,656) (with Chen et al (6,174,661 B1) which is cited here to support the Examiner's position that "Florad FC430" and "FC431" are fluorinated alkyl esters).

With respect to present claim 9, Kawabe uses Megafac F176 (fluorine type surfactant) in his Examples 1 and 2, and the prior art teaches equivalence of this surfactant to Florad FC430 and FC431 in col.43, lines 46-56. Since the prior art teaches equivalence of these compounds, it is the Examiner's position that it would have been obvious to one of ordinary skill in the art to use Florad FC430 or FC431 in place of the Megafac F176 in Kawabe's Examples 1 and 2 with a reasonable expectation of achieving a positive photosensitive resin composition which shows excellent performances with respect to the residual film ratio, resist profile, resolution, and dry-etching resistance. Florad FC430 and FC431 are fluorinated alkyl esters as evidenced by Chen et

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al, col.7, lines 22-23. Therefore, Kawabe's teaching would render obvious present invention of claim 9.

With respect to present claim 10, Kawabe teaches that his fluorine type and/or silicon type surfactant is present preferably from 0.01 to 1 part by weight per 100 parts by weight of the composition of his invention (0.01-1 wt%). Since present range of 10 to 2,000 ppm converts to 0.001-0.2%, the prior art's range overlaps with present range and thus would render the present range *prima facie* obvious. In the case "where the [claimed] ranges overlap or lie inside ranges disclosed by the prior art," a *prima facie* case of obviousness would exist which may be overcome by a showing of unexpected results, In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976). Therefore, the prior art's teaching would render obvious present invention of claim 10.

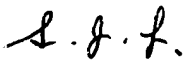
With respect to present claims 11 and 12, Kawabe does not explicitly teach the weight ratio of the non-ionic surfactant to the fluorine surfactant (although the prior art teaches the amount for the fluorine surfactant). However, since Kawabe teaches that the nonionic surfactant is being added for the purpose of improving the applicability of the photoresist composition and improving developability, it is the Examiner's position that the present range for the weight ratio would have been obvious to one skilled in the art since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Therefore, Kawabe's teaching would render obvious present inventions of claims 11 and 12.

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8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sin J. Lee whose telephone number is (703) 305-0504. The examiner can normally be reached on Monday-Friday from 8:30 am EST to 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Janet Baxter, can be reached on (703) 308-2303. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9311 for after final responses or (703) 872-9310 for before final responses.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-0661.



S. Lee
September 4, 2002



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